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EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/059,096	Applicant(s) WILCOCK ET AL.	
	Examiner Corey P. Chau	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/21/02, 5/13/02, 11/5/02</u> | 6) <input type="checkbox"/> Other: _____ |

81

DETAILED ACTION

Claim Objections

1. Claims 19 is objected to because of the following informalities: on line 5, recites "the at least part-cylindrical surface", should be replaced with "an at least part-cylindrical surface". Appropriate correction is required here and through out the rest of the document.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-63 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6154549 to Arnold et al. (hereafter as Arnold).

4. Regarding Claim 1, Arnold disclose an audio user-interfacing (Figs. 1 and 18-24) method in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item appear to emanate, the method comprising the steps of: (a) determining, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field, the rendering positions associated with the sound sources being distributed over an at least part-cylindrical notional surface (Figs. 2-16 and 18-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10); and (b) generating,

using audio output devices, an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 16 and 19; column 12, lines 27-36).

5. Regarding Claim 2, Arnold discloses displacing the audio field in a direction parallel to the axis of said at least part-cylindrical surface whereby to change the portion of the field closest to a reference position where a user is at least notionally located (Fig. 16).

6. Regarding Claim 3, Arnold discloses rotating the audio field about the axis of said at least part-cylindrical surface (Figs. 8, 16 and 17; column 9, lines 1-12; column 21, lines 45-52; column 26, lines 61-67).

7. Regarding Claim 4, Arnold discloses the audio field is displaced in said direction in discrete steps of predetermined magnitude (Fig. 16; column 9, line 57 to column 10, line 4; column 32, lines 10-36).

8. Regarding Claim 5, Arnold discloses the axis of said at least part-cylindrical surface is vertically disposed, the sound sources being notionally grouped at differing levels corresponding to floors of a building, the predetermined magnitude of said discrete steps corresponding to moving up or down one floor (Fig. 16).

9. Regarding Claim 6, Arnold discloses the sound sources are arranged in groups with the sound sources in each group being at the same position along said axis and the groups being separated one from another along said axis by distances corresponding to multiples, including one, of said predetermined magnitude (Figs. 2-4, 8, and 16).

Art Unit: 2644

10. Regarding Claim 7, Arnold discloses sound sources located in the audio field outside of a focus zone fixed relative to said reference position, are at least partially muted relative to sound sources inside the focus zone; the sound sources being unmuted and muted as they move into and out of the focus zone in response to displacement of the audio field in said direction parallel to the axis of the at least part-cylindrical surface (column 31, line 65 to column 32 line 9).
11. Regarding Claim 8, Arnold discloses sound sources adjacent to, but outside of, the focus zone are partially muted whilst those further from the focus zone are fully muted (column 18, lines 27-37; column 31, line 65 to column 32 line 9).
12. Regarding Claim 9, Arnold discloses sound sources outside of the focus zone are fully muted, an audio indication of the sound sources existing beyond the focus zone in at least one direction being provided un-muted in the audio field (column 18, lines 27-37; column 31, line 65 to column 32 line 9).
13. Regarding Claim 10, Arnold discloses the audio field is stabilized relative to one of: a user's head; a user's body; a vehicle in which the user is traveling; the world; this stabilization taking account of whether the audio output devices are world, vehicle, body or head mounted, and, as appropriate, rotation of the user's head or body, or of the vehicle, about an axis parallel to the said axis of the at least part-cylindrical surface (Figs. 2-4, 8, and 16).
14. Regarding Claim 11, Arnold discloses sound sources are synthesized to lie at different radial distances from the axis of said at least part-cylindrical surface to the sound sources distributed over that surface (Figs. 8 and 16; column 21, lines 45-52).

15. Regarding Claim 12, Arnold discloses the axis of said at least part-cylindrical surface is vertically disposed (Fig. 16).

16. Regarding Claim 13, Arnold discloses the axis of said at least part-cylindrical surface is horizontally disposed (Fig. 16).

17. Regarding Claim 14, Arnold discloses at least some of the said items represented by the sound sources are audio labels for services, the method further involving selecting a service by selecting the corresponding audio-label sound source (Fig. 1; column 10, lines 48-67).

18. Regarding Claim 15, Arnold discloses an audio user-interfacing (Figs. 1 and 18-24) method in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item appear to emanate, the method comprising the steps of: (a) determining, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field (Figs. 2-9, 11-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10); and (b) generating, using audio output devices, an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 2-9, 11-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10); (c) exploring the audio field by rotating it about a predetermined axis (Figs. 8, 16 and 17; column 9, lines 1-12; column 21, lines 45-52; column 26, lines 61-67); and (d) exploring the audio by displacing it in a direction parallel to said axis (Fig. 16); with steps (c) and (d) being effected in any order

Art Unit: 2644

or together (Figs. 8, 16 and 17; column 9, lines 1-12; column 21, lines 45-52; column 26, lines 61-67; column 32, line 54 to column 33, line 10).

19. Claim 16 is essentially similar to Claim 4 and is rejected for the reasons stated above apropos to Claim 4.

20. Claim 17 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos to Claim 5.

21. Claim 18 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

22. Regarding 19, Arnold discloses sound sources located in the audio field outside of a focus zone fixed relative to a notional user position, are at least partially muted relative to sound sources inside the focus zone; the sound sources being un-muted and muted as they move into and out of the focus zone in response to displacement of the audio field in said direction parallel to the axis of the at least part-cylindrical surface (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

23. Claim 20 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

24. Regarding Claim 21, Arnold discloses sound sources outside of the focus zone are fully muted, an audio indication of the sound sources existing beyond the focus zone in at least one direction along said axis being provided un-muted in the audio field (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

25. Claim 22 is essentially similar to Claim 10 and is rejected for the reasons stated above apropos to Claim 10.

Art Unit: 2644

26. Regarding Claim 23, Arnold discloses the sound sources are distributed over an at least part-cylindrical notional surface (Fig. 16).

27. Regarding Claim 24, Arnold discloses the sound sources are distributed in three dimensions in terms of a cylindrical coordinate system referenced to said axis (Fig. 16; column 25, line 65 to column 26, line 22).

28. Regarding Claim 25, Arnold discloses said axis is vertically disposed (Figs. 16).

29. Regarding Claim 26, Arnold discloses said axis is horizontally disposed (Fig. 16).

30. Claim 27 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14.

31. Regarding Claim 28, Arnold discloses apparatus (Fig. 1) for providing an audio user interface in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item appear to emanate, the apparatus comprising: rendering-position determining means for determining, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field, the rendering positions associated with the sound sources being distributed over an at least part-cylindrical notional surface (Figs. 16 and 18-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10); and rendering means, including audio output devices, for generating an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 16 and 18-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10).

Art Unit: 2644

32. Regarding Claim 29, Arnold discloses the rendering-position determining means comprises: means for setting the location of each said sound source relative to an audio-field reference (column 10, lines 48-67; column 11, line 55 to column 12, line 10); offset means for controlling an offset between the audio-field reference and a presentation reference determined by a mounting configuration of the audio output devices (Fig. 8; column 21, lines 45-52; column 32, line 54 to column 33, line 10), the offset means including user input means and being operative to enable a user to set a displacement of the audio field relative to the presentation reference in a direction parallel to the axis of said at least part-cylindrical surface (Fig. 16; column 10, lines 48-67); and means for deriving the rendering position of each sound source based on the location of the sound source in the audio field and said offset (column 32, line 54 to column 33, line 10).

33. Regarding Claim 30, Arnold discloses the offset means is further operative to enable a user to set a rotation of the audio field about the axis of said at least part-cylindrical surface (Figs. 8, 16 and 17; column 9, lines 1-12; column 21, lines 45-52; column 26, lines 61-67).

34. Regarding Claim 31, Arnold discloses the offset means is arranged to permit the audio field to be displaced in said direction only in discrete steps of predetermined magnitude (Figs. 8, 16 and 17; column 9, lines 1-12; column 21, lines 45-52; column 26, lines 61-67; column 32, lines 10-35).

35. Regarding Claim 32, Arnold discloses a muting filter operative to at least partially mute sound sources with rendering positions located in the audio field outside of a focus

zone fixed relative to said presentation reference (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

36. Regarding Claim 33, Arnold discloses the muting filter is operative to only partially mute sound sources adjacent to, but outside of, the focus zone but to fully mute sound sources further from the focus zone (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

37. Regarding Claim 34, Arnold discloses the muting filter is operative to fully mute sound sources outside of the focus zone, the apparatus including means for providing an un-muted audio indication of the sound sources existing beyond the focus zone in at least one direction along said axis (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

38. Regarding Claim 35, Arnold discloses at least some of the said items represented by the sound sources are audio labels for services, the apparatus including a selection arrangement for selecting a service by selecting the corresponding audio-label sound source (Fig. 1; column 10, lines 48-67).

39. Regarding Claim 36, Arnold discloses the offset means further includes stabilization means for varying the said offset such as to stabilize the audio field reference relative to one of: a user's head; a user's body; a vehicle mounting the apparatus; the world (Figs. 2-4, 8, and 16).

40. Regarding Claim 37, Arnold discloses apparatus (Fig. 1) for providing an audio user interface in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item

Art Unit: 2644

appear to emanate, the apparatus comprising: rendering-position determining means for determining (Fig. 1), for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field, the rendering-position determining means comprising: means for setting the location of each said sound source relative to an audio-field reference (column 10, lines 48-67; column 11, line 55 to column 12, line 10); offset means for controlling an offset between the audio-field reference and a presentation reference determined by a mounting configuration of the audio output devices, the offset means including user input means and being operative to enable a user both: to set a rotation of the audio field about a predetermined axis, and to set a displacement of the audio field relative to the presentation reference in a direction parallel to said axis (Fig. 8; column 21, lines 45-52; column 32, line 54 to column 33, line 10); and means for deriving the rendering position of each sound source based on the location of the sound source in the audio field and said offset; and rendering means, including audio output devices, for generating an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 1 and 8; column 21, lines 45-52; column 32, line 54 to column 33, line 10).

41. Regarding Claim 38, Arnold discloses the offset means is arranged to permit the audio field to be displaced in said direction only in discrete steps of predetermined magnitude (column 32, lines 10-36).

42. Regarding Claim 39, Arnold discloses a muting filter operative to at least partially mute sound sources with rendering positions located in the audio field outside of a focus

Art Unit: 2644

zone fixed relative to said presentation reference (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

43. Regarding Claim 40, Arnold discloses the muting filter is operative to only partially mute sound sources adjacent to, but outside of, the focus zone but to fully mute sound sources further from the focus zone (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

44. Regarding Claim 41, Arnold discloses the muting filter is operative to fully mute sound sources outside of the focus zone, the apparatus including means for providing an un-muted audio indication of the sound sources existing beyond the focus zone in at least one direction along said axis (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

45. Regarding Claim 42, Arnold discloses the rendering-position determining means is operative to cause said sound sources to be distributed over an at least part-cylindrical notional surface (Fig. 16).

46. Regarding Claim 43, Arnold discloses the rendering-position determining means is operative to cause the sound sources to be distributed in three dimensions in terms of a cylindrical coordinate system referenced to said axis (Fig. 16).

47. Regarding Claim 44, Arnold discloses at least some of the said items represented by the sound sources are audio labels for services, the apparatus including a selection arrangement for selecting a service by selecting the corresponding audio-label sound source (Fig. 1; column 10, lines 48-67).

Art Unit: 2644

48. Regarding Claim 45, Arnold discloses the offset means further includes stabilization means for varying the said offset such as to stabilize the audio field reference relative to one of: a user's head; a user's body; a vehicle mounting the apparatus; the world (Figs. 2-4, 8, and 16).

49. Regarding Claim 46, Arnold discloses apparatus (Fig. 1) for providing an audio user interface in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item appear to emanate, the apparatus comprising: a rendering-position determining arrangement operative to determine, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field, the rendering positions associated with the sound sources being distributed over an at least part-cylindrical notional surface (Figs. 16-19; column 10, lines 48-67; column 11, line 55 to column 12, line 10); and a rendering subsystem, including audio output devices, arranged to generate an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 16-19; column 12, lines 27-36).

50. Regarding Claim 47, Arnold discloses the rendering-position determining arrangement comprises: a setting arrangement for setting the location of each said sound source relative to an audio-field reference (Fig. 1); a control arrangement for controlling an offset between the audio-field reference and a presentation reference determined by a mounting configuration of the audio output devices, the control arrangement including a user input arrangement and being operative to enable a user to

Art Unit: 2644

set a displacement of the audio field relative to the presentation reference in a direction parallel to the axis of said at least part-cylindrical surface (Figs. 1 and 16; column 10, lines 48-67); and a deriving arrangement operative to derive the rendering position of each sound source based on the location of the sound source in the audio field and said offset (column 16-19).

51. Regarding Claim 48, Arnold discloses the control arrangement is further operative to enable a user to set a rotation of the audio field about the axis of said at least part-cylindrical surface (Fig. 16).

52. Regarding Claim 49, Arnold discloses the control arrangement is arranged to permit the audio field to be displaced in said direction only in discrete steps of predetermined magnitude (column 32, lines 10-36).

53. Regarding Claim 50, Arnold discloses comprising a muting filter operative to at least partially mute sound sources with rendering positions located in the audio field outside of a focus zone fixed relative to said presentation reference (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

54. Regarding Claim 51, Arnold discloses the muting filter is operative to only partially mute sound sources adjacent to, but outside of, the focus zone but to fully mute sound sources further from the focus zone (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

55. Regarding Claim 52, Arnold discloses the muting filter is operative to fully mute sound sources outside of the focus zone, the apparatus including means for providing an un-muted audio indication of the sound sources existing beyond the focus zone in at

Art Unit: 2644

least one direction along said axis (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

56. Regarding Claim 53, Arnold discloses at least some of the said items represented by the sound sources are audio labels for services, the apparatus including a selection arrangement for selecting a service by selecting the corresponding audio-label sound source (Fig. 1; column 10, lines 48-67).

57. Regarding Claim 54, Arnold discloses the offset means further includes stabilization means for varying the said offset such as to stabilize the audio field reference relative to one of: a user's head; a user's body; a vehicle mounting the apparatus; the world (Figs. 2-4, 8, and 16).

58. Regarding Claim 55, Arnold discloses apparatus for providing an audio user interface in which each of a plurality of items is represented in an audio field by at least one respective synthesized sound source from where sounds related to the item appear to emanate, the apparatus comprising: a rendering-position determining arrangement operative to determine, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field, the rendering-position determining means comprising: a setting arrangement for setting the location of each said sound source relative to an audio-field reference (Figs. 1 and 16; column 10, lines 48-67); a control arrangement for controlling an offset between the audio-field reference and a presentation reference determined by a mounting configuration of the audio output devices, the control arrangement including a user input device and being operative to enable a user both: to set a rotation of the audio field about a

predetermined axis, and to set a displacement of the audio field relative to the presentation reference in a direction parallel to said axis; and a deriving arrangement for deriving the rendering position of each sound source based on the location of the sound source in the audio field and said offset (Figs. 1 and 18-18-24); and a rendering subsystem, including audio output devices, operative to generate an audio field in which said sound sources are synthesized at their associated rendering positions to provide sounds related to the items concerned (Figs. 18-24; column 32, line 54 to column 33, line 10).

59. Regarding Claim 56, Arnold discloses the control arrangement is operative to permit the audio field to be displaced in said direction only in discrete steps of predetermined magnitude (column 32, lines 10-36).

60. Regarding Claim 57, Arnold discloses a muting filter operative to at least partially mute sound sources with rendering positions located in the audio field outside of a focus zone fixed relative to said presentation reference (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

61. Regarding Claim 58, Arnold discloses the muting filter is operative to only partially mute sound sources adjacent to, but outside of, the focus zone but to fully mute sound sources further from the focus zone (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

62. Regarding Claim 59, Arnold discloses the muting filter is operative to fully mute sound sources outside of the focus zone, the apparatus including an arrangement operative to provide an un-muted audio indication of the sound sources existing beyond

Art Unit: 2644

the focus zone in at least one direction along said axis (column 18, lines 27-37; column 31, line 65 to column 32 line 9).

63. Regarding Claim 60, Arnold discloses the rendering-position determining arrangement is operative to cause said sound sources to be distributed over an at least part-cylindrical notional surface (Fig. 16).

64. Regarding Claim 61, Arnold discloses the rendering-position determining arrangement is operative to cause the sound sources to be distributed in three dimensions in terms of a cylindrical coordinate system referenced to said axis (Fig. 16).

65. Regarding Claim 62, Arnold discloses at least some of the said items represented by the sound sources are audio labels for services, the apparatus including a selection arrangement for selecting a service by selecting the corresponding audio-label sound source (Fig. 1; column 10, lines 48-67).

66. Regarding Claim 63, Arnold discloses the control arrangement further includes stabilization means for varying the said offset such as to stabilize the audio field reference relative to one of: a user's head; a user's body; a vehicle mounting the apparatus; the world (Figs. 2-4, 8, and 16).

Conclusion


67. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

Art Unit: 2644

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 27, 2005
CPC



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